

What is claimed is:

1. A coupling arrangement, comprising:
  - a waveguide having an end portion including an end face;
  - 5 a support having at least one conductor formed thereon;
  - at least one semiconductor element, the semiconductor element being one of an electro-optical type and an opto-electrical type, the semiconductor element being disposed to optically oppose the end face of the waveguide, the semiconductor element being fixedly connected to the support;
  - 10 a bond wire electrically connecting the semiconductor element to the conductor;
  - a coupling element connected to the support and adapted to receive the end portion of the waveguide;
  - a submount having a top and bottom side, the submount being fixed at its bottom side to the support, the submount having on its top side an adjustment structure in the
  - 15 form of a recess adapted for precise adjustment of the semiconductor element; and
  - a transparent adhesive, wherein
    - the semiconductor element is fixed in a thermally conductive manner to the submount, the coupling element is positively aligned on the submount, at least that
    - conductor of the support onto which the bond wire is connected is electrically isolated
    - 20 from the submount, and wherein a space between the semiconductor element and the end face of the waveguide is filled by the transparent adhesive.
- 25 2. A coupling arrangement as claimed in claim 1, adapted so that the end portion of the waveguide is able to be inserted into the recess of the submount without tolerance.
3. A coupling arrangement as claimed in claim 1, wherein an optical path is defined for the semiconductor element, the coupling arrangement further comprising a beam-forming metallic reflector surrounding the optical path of the semiconductor element, the beam-forming metallic reflector being arranged between the semiconductor element and
- 30 the end face of the waveguide.
4. A coupling arrangement as claimed in claim 3, wherein the reflector comprises a metal layer disposed on surfaces of the submount surrounding the semiconductor element.

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5. A coupling arrangement as claimed in claim 3, wherein the reflector comprises a metal layer formed on a wall of the coupling element between the end face of the waveguide and an end portion of the coupling element adjoining the semiconductor element.
- 5 6. A coupling arrangement as claimed in claim 4, wherein the reflector comprises a metal layer formed on a wall of the coupling element between the end face of the waveguide and an end portion of the coupling element adjoining the semiconductor element.
- 10 7. A coupling arrangement as claimed in claim 1, further comprising at least one cutout for accommodating at least one bond wire extending from the semiconductor element, the cutout being formed in at least one of the coupling element and the submount.
- 15 8. A coupling arrangement as claimed in claim 3, wherein the optical path is further defined as being between the semiconductor element and the end face of the waveguide, and wherein the reflector deflects the optical path by 90°.
- 20 9. A coupling arrangement as claimed in claim 1, wherein the waveguide comprises a glass fiber, the end portion of the waveguide adjoins the semiconductor element, and wherein the end portion is held by a highly precise ferrule receivably disposed in the recess formed in the submount.
- 25 10. A coupling arrangement as claimed in claim 1, wherein the submount is electrically conductive, the semiconductor element is electrically connected to the submount, and wherein the bottom side of the submount is electrically connected to the support.
- 30 11. A coupling arrangement for optically coupling an end in an end portion of an optical waveguide with at least one electro-optical or opto-electrical semiconductor element that optically opposes the end face of the waveguide, comprising:  
a support having at least one conductor formed thereon;  
means for electrically connecting the semiconductor element to the at least one  
35 conductor formed on the support;

a coupling element connected to the support, the coupling element comprising means for receiving the end portion of the optical waveguide;

a submount having a top side and a bottom side, the submount being fixed at its bottom side to the support and being electrically isolated from at least one conductor of the support, the submount comprising adjustment means for precisely adjusting a position of the semiconductor element;

means for fixing the semiconductor element in a thermally conductive manner to the submount; and,

means for filling a space between the semiconductor element and a face of the end of the optical waveguide; is filled by a transparent adhesive, wherein the coupling element is positively aligned on the submount.

12. The coupling arrangement according to claim 11, wherein the means for electrically connecting the semiconductor element to the conductor comprise at least one bond wire.

13. The coupling arrangement according to claim 12, wherein the conductor that is connected to the at least one bond wire is electrically isolated from the submount.

14. The coupling arrangement according to claim 11, wherein the adjustment means are in the form of a recess adapted for precise adjustment of the semiconductor element.

15. The coupling arrangement according to claim 14, wherein the adjustment means are disposed on the top side of the submount.

16. The coupling arrangement according to claim 11, wherein the means for filling a space between the semiconductor element and a face of the end of the optical waveguide comprise a transparent adhesive.

17. An optical coupler for optically coupling an optical waveguide, having an end portion, with at least one electro-optical or opto-electrical semiconductor element that optically opposes an end face of the end portion, the optical waveguide being insertable into the optical coupler, the optical coupler comprising:

a support having at least one conductor formed thereon;

at least one semiconductor element disposed to optically oppose the end face of the waveguide, the semiconductor element being fixedly connected to the support;

a bond wire electrically connecting the semiconductor element to the conductor;

5 a coupling element connected to the support and adapted to receive the end portion of the optical waveguide;

a submount having a top and bottom side, the submount being fixed at its bottom side to the support, the submount having on its top side an adjustment structure in the form of a recess adapted for precise adjustment of the semiconductor element; and

a transparent adhesive,

10 wherein the semiconductor element is fixed in a thermally conductive manner to the submount, the coupling element is positively aligned on the submount, at least that conductor of the support onto which the bond wire is connected is electrically isolated from the submount, and wherein a space, between the semiconductor element and the end face of an optical waveguide to be inserted, is adapted to be filled by the

15 transparent adhesive.